



Forensic Science Center of Excellence

Proposer Webinar

Jason Boehm

Program Coordination Office

National Institute of Standards and Technology

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Webinar Agenda

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|---------|---|
| 1:00 pm | Welcome |
| 1:05 pm | Overview of NIST Forensic Science Programs |
| 1:10 pm | Overview of Federal Funding Opportunity (FFO) |
| 1:45 pm | Question and Answer Session |

Presentation Overview

- NIST Centers of Excellence Program
- Forensic Science
- Forensic Science Center of Excellence
- Federal Funding Opportunity (FFO)

NIST Centers of Excellence Program

The NIST Centers of Excellence will:

- Enable collaborations between NIST and Leading Research Institutes in areas of emerging technology important for NIST.
- Provide new opportunities for training in measurement science.
- Enhance technical innovation through early alignment of measurement science with emerging and innovative new fields of research.

NIST Centers of Excellence Program

- Each center is targeted at \$20M over five years with an option for a five year renewal.
- FY2013: NIST awarded one Center focused on Advanced Materials
- FY2014: NIST expects to award the Resilience Center of Excellence
- FY2015: NIST expects to award the Forensic Science Center of Excellence
- There will be one award for the Forensic Science Center of Excellence.

Forensic Science

- Forensic Science involves the collection and measurement of evidence, analysis of those measurements, and determination of conclusions.
- Forensic Science is very broad term that includes many disciplines, including: general toxicology; firearms/toolmarks; questioned documents; trace evidence; controlled substances; biologics; fire/arson; crime scene investigation; death investigation; impression evidence; blood pattern analysis; and digital evidence.
- NIST has experience in most of these disciplines; see <http://www.nist.gov/forensics/> for more information

Forensic Science

- 2009 National Research Council report (Strengthening Forensic Science in The United States – A Path Forward) recommended:
 - a thorough examination of the analysis methods is necessary to better understand the analytical strengths and limitations.
 - scientifically rigorous standards and practices, including development of tools and methods, are required to better standardize analytical protocols.
- One method of addressing the issue of analytical “strengths and limitations” and standardization is a more thorough understanding of measurement uncertainty.
 - “..the concept of “uniquely associated with” must be replaced with a probabilistic association..” (excerpt from Strengthening Forensic Science in The United States – A Path Forward, page 184)
- Probabilistic analysis is a science-based metrology tool used to help quantify uncertainty.

Probabilistic Analysis - examples

Potential questions that could be addressed by a probabilistic analysis approach:

- What are the factors contributing to uncertainties for various techniques for obtaining evidence (e.g., crime scene lift, disk imaging, etc.)?
- What is the probability of a “match” between the known and questioned impression?
- What is the uncertainty of this “match”, and what are the major and minor factors contributing to these uncertainties?

Our Existing Probabilistic Analysis Capability is Limited

- Reporting uncertainty in forensic science measurements is currently an uncommon practice, largely because the profession is unclear on how to apply it.

Significant need to:

- Develop robust statistical methods for specific forensic science disciplines;
- Develop and disseminate probabilistic method training tools for diverse stakeholder community

What is the Objective of the Forensic Science CoE?

NIST is initiating research to develop a strong scientific basis in probabilistic methods and computation development, focused on the specific disciplines of pattern evidence and digital evidence.

This scientific basis will be disseminated to the relevant stakeholder community (e.g., forensic scientists, judges, lawyers, juries, etc.) through a newly developed education and training infrastructure.

The long-term objective is to provide decision-makers and professionals with methods, tools, and education to utilize probabilistic methods in the greater forensic science community.

How will the CoE Achieve this Objective?

By combining NIST's expertise in measurements and statistics with the Forensic Science Center of Excellence, the next level of science-based probabilistic methods can be achieved to enhance forensic science through the following research areas:

1. Pattern Evidence
2. Digital Evidence
3. Dissemination of results in relevant, usable format(s) to the greater forensic science community

Probabilistic Methods

The COE will work towards understanding the inevitable presence of uncertainty, the unique context of circumstances surround each collection, measurement and analysis of the evidence, and the complexity from numerous, interrelated variables.

NIST envisions this effort to include but not be limited to:

- Applying advanced statistical methods for both current and new forensic analysis methods;
- Developing robust sets of synthetic and real world test data;
- Assessing application and robustness of probabilistic methods;
- Developing and disseminating standard terminology as related to forensic metrology and probabilistic methods

Pattern Evidence

Pattern and impression evidence includes physical evidence produced when one object comes into contact with another object.

The scope could include fingerprints, shoeprints, tool marks, tire tracks, etc.

Digital Evidence

Digital evidence includes the when, where, how and why information was actually written, and who made it happen, and whether the findings were impacted by an undetected fault in forensic tooling, procedural error, or fraud.

Recent Addition to FAQ website

Q: Digital evidence as represented in the RFP is quite broad. There are many distinct types of digital evidence that are very different from each other, such as:

1. Computers and information systems: Individuals may use information technology in the commission of a crime, either as a support tool (e.g., cell phone address book) or as the primary mechanism (e.g., financial hacking).
2. Surveillance systems may be used to monitor activities. The output of these systems may be exploited to fix the identity of a suspect or the facts of a case. Typical systems include video systems, gunshot detection systems, radars, and other surveillance equipment.
3. The forensic scientist may use information systems to collect or store information about evidence. This may include picture/video data, spectral data, composition, genetic data, and other information about an individual, physical object, or event.

Which of these types of digital evidence are covered under this FFO?

A: In the context FFO (and given the groupings as listed above), computers and information systems would be considered reasonable topics. Surveillance systems would not be considered an immediate focus area but could be examined in future efforts should the awardee make substantial progress in the previously mentioned areas. Collection and storage of information regarding evidence are not covered by this RFP.

Research Dissemination

For the Center to have maximum and lasting impact on the forensic science community, the results from the probabilistic method development effort will need to be disseminated among the various stakeholders.

- Traditional modes of communication (i.e., peer-reviewed literature) are insufficient

A new communication and information deployment infrastructure is required.

- Goal is engagement, education, training and utilization of the developed tools by the greater forensic science stakeholder community.

Forensic Science CoE

FFO Overview

- Funding: Up to \$4 million per year for five years, with possibility for an additional five year award.
- Application Process: Single application. No pre-application is required.
- Cost Share: Cost sharing is not required.
- Number of Awards: One.

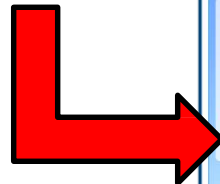
Forensic Science CoE

FFO Overview

- Proposal limit: 25 pages to include:
 - Executive Summary
 - Problem Statement
 - Technical Plan
 - Experience, Qualifications, and Resource Availability
 - Success Metrics
 - References

How Does One Apply?

Information for successful application submission on Grants.gov is found on the pull-down options under the “Applicants” tab. Be sure to read them all carefully.



For details of the Forensic Science Center of Excellence program, and to apply, click on <http://www.grants.gov/web/grants/view-opportunity.html?oppld=262395>. Be sure to read the Application Instructions document found after clicking on the “Application Package” tab

The screenshot shows the Grants.gov homepage. At the top, there's a navigation bar with links like HOME, ABOUT, SEARCH GRANTS, APPLICANTS, GRANTORS, SYSTEM-TO-SYSTEM, FORMS, OUTREACH, and SUPPORT. A search bar is also present. Below the navigation bar, there's a section titled 'Apply for Grants' with a button that says 'Apply for Grant Opportunities'. To the right of this section is a 'Grants.gov Updates' box. Below the 'Apply for Grants' section is a 'Find Open Grant Opportunities' section with a table of grant listings. The table has columns for Funding Opportunity Number, Opportunity Title, and Agency. Below the table are links for CONNECT, RSS, XML, Extract, Blogger, and Get Adobe Reader. At the bottom right, there's a 'Financial Assistance' section and a 'Suspect Fraudulent Activity?' section.

Funding Opportunity Number	Opportunity Title	Agency
P14AS00392	American Battlefield Protection Program Battlefield Preservation Project Grants	National Park Service
F15AS00000	Cooperative Landscape Conservation and Science Support	Fish and Wildlife Service
F14AS00447	Great Ape Conservation Fund	Fish and Wildlife Service
P14AS00393	FY 2015 NAGPRA Grant Program	National Park Service
ECA-ECALMAQM-15-001	Official U.S. Presentation at the 15th International Architecture Exhibition, Venice, Italy, June Through November, 2016	Bureau Of Educational and Cultural Affairs
CDC-RFA-GH15-1568	Strengthening Human Resources for Health Capacity in the Republic of Rwanda under the President's Emergency Plan for AIDS Relief (PEPFAR)	Centers for Disease Control and Prevention
DE-FOA-0001189	Climate Action Champions	Golden Field Office
TATFY15	TAT Grant Program FY15	Utilities Programs
CDC-RFA-GH15-1590	Provision of Comprehensive HIV/AIDS, STI and TB Services Including Prevention, Care, Support and Treatment to Prisoners and Staff of the Prisons Service in the Republic of Uganda under the President's Emergency Plan for AIDS Relief	Centers for Disease Control and Prevention

Timing

- Application is due no later than 11:59 p.m. Eastern Time, Thursday, December 11, 2014 via the Grants.gov website.
 - To avoid any potential processing backlogs due to last minute Grants.gov registrations, applicants are highly encouraged to begin their Grants.gov registration process early.
- Anticipated Announcement and Award Dates.
 - Review and selection is expected to be completed in February 2015.
 - Award processing and the earliest anticipated start date for the award made under this FFO is expected to be March 2015.

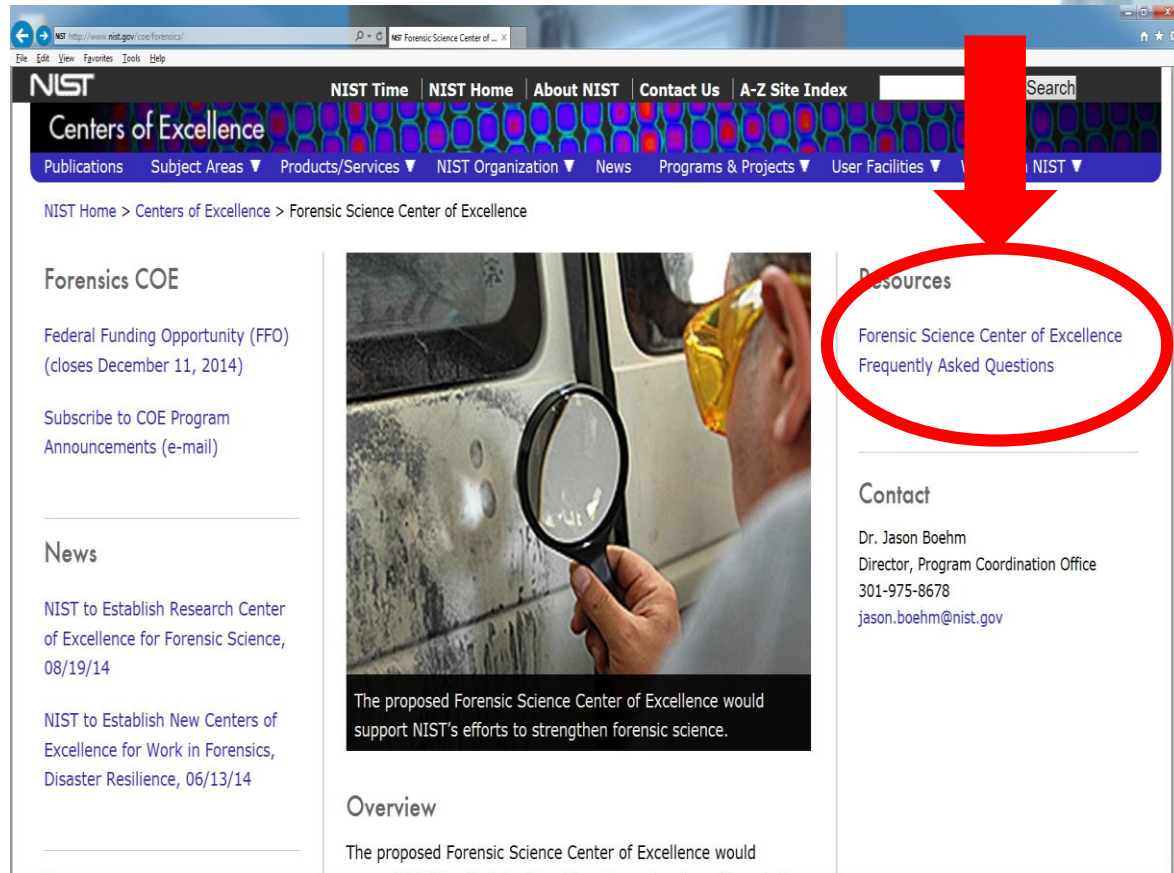
Eligibility

- Accredited institutions of higher education and organizations located in the United States and its territories.
- You may partner with others, but an organization may only be the lead organization on one proposal.
 - In a team or consortium, eligible subawardees are U.S. organizations, accredited institutions of higher education, commercial organizations, and state, tribal, and local governments. Federal agencies may participate in projects but may not receive NIST funding.
- ***FFRDC, energy lab contractors, or other special situations should consult their GC to determine eligibility.***

Frequently Asked Questions

www.nist.gov/coe/forensics

- Check back frequently. Updated on a regular basis with questions received. Answers are shared with everyone in order to ensure fairness.
- The FAQ site contains a subscription feature. Simply enter an email address in the dialogue box on the FAQ page.



What We Expect to see in a Successful Proposal

- Clearly articulated technical approach and program plan
- Evidence of ability to manage large, multi-disciplinary program
- Demonstrated expertise and history of research in probabilistic methods and pattern evidence and/or digital evidence
- Clear plan for engaging the diverse stakeholder community
- Access to facilities and overall infrastructure needed to accomplish program objectives

Evaluation Criteria

- Rationality (0 – 15 points)
- Experience, Qualifications, and Resource Availability (0 to 30 points)
- Technical Plan (0 to 40 points)
- Success Metrics (0 – 15 points)

Evaluation Criteria - Rationality

- Rationality (0 – 15 pts)

The quality of the applicant's approach to clearly and effectively address scientific and technical challenges relevant to the objectives of the Forensic Science Center of Excellence. The structure, clarity, and effectiveness of the overall approach will be considered.

Evaluation Criteria - Experience

- Experience, Qualifications, and Resource Availability (0 to 30 pts)

The extent to which the applicant has access to the necessary facilities and overall support to accomplish project objectives. Factors considered as a whole and not given particular weights within the category include:

1. the degree to which requested resources are appropriate for the proposed project's scope;
2. the quality of the organizational resources proposed for the project;
3. the rationality and potential effectiveness of any planned subawards and/or contracts;
4. demonstrated commitment to encouraging and assisting under-represented participants in the proposed project;
5. plans for staff exchange of extended duration, for example of more than sixty (60) days, between NIST and the applicant, including the type and number of personnel.

Evaluation Criteria – Technical Plan

- Technical Plan (0 to 40 pts)

The technical merit of the proposed work and the value it would contribute to future breakthroughs in forensic science. Factors considered as a whole and not given particular weights within the category include:

- 1.creativity and originality of the proposed approach;
- 2.plausibility of the technical approach;
- 3.scope of work, including the number and type of probabilistic methods development and proposed interdisciplinary approaches;
- 4.the magnitude and reach of potential technical outcomes;
- 5.linkage between the technical outcomes and industry and forensic science community needs as described in the proposal; and
- 6.degree of integration with the efforts and outputs of NIST programs and capabilities in the areas of pattern evidence and digital evidence.

Evaluation Criteria – Success Metrics

- Success Metrics (0 to 15 pts)

The clarity and quality of proposed metrics and mechanisms for evaluating the effectiveness of outputs from the Forensic Science Center of Excellence, including but not limited to the engagement, education, training, and utilization of the developed tools by the greater forensic science stakeholder community.

Review and Selection Process

- Initial Administrative Review
- Full Review of Eligible, Complete, and Responsive Applications
 - Each application will be reviewed by at least three (3) independent reviewers using the evaluation criteria
 - Scores will be determined on an individual basis
 - All applications will be provided to the Evaluation Panel
- Evaluation Panel
 - Consist of NIST staff and/or other federal agency employees
 - Provide adjectival rankings of proposals for selecting official

Review and Selection Process

- Evaluation Panel will prepare and provide a final adjectival ranking taking into consideration the following
 - results of the reviewers' evaluations;
 - the extent to which the proposed scope of the research (materials, computational methods, personnel, or equipment) is complementary to the research programs and research goals in these areas at NIST.
 - relevance of an application to the program as described in Section I of this FFO.
- Adjectival Rankings
 - Fundable, Outstanding
 - Fundable, Very Good
 - Fundable
 - Unfundable

Review and Selection Process

- Selection Official
 - Associate Director for Laboratory Programs (or designee)
 - Select an application to recommend to the Grants Office based on one or more of the following selection factors:
 - the results of the reviewers' evaluations; the Evaluation Panel evaluation; the availability of funds;
 - the extent to which the proposed scope of the research (materials, computational methods, personnel, or equipment) is complementary to the research programs and research goals in these areas at NIST;
 - the relevance to the program as described in Section I. of this FFO; and
 - whether the project duplicates other projects funded by the Department of Commerce or other Federal agencies

Points of Contact

Programmatic and technical questions	Dave Holbrook National Institute of Standards and Technology Phone: (301) 975-4462 Fax: (301) 216-0529 E-mail: dave.holbrook@nist.gov
Application submission	Christopher Hunton Administrative Support & Document Control Office NIST Phone: 301-975-5718 Fax: 301-975-8884 E-mail: christopher.hunton@nist.gov Grants.gov Phone: 800-518-4726 E-mail: support@grants.gov
Grant rules and regulations	Scott McNichol Grants Management Division NIST Phone: 301-975-5603 Fax: 301-975-5976 E-mail: scott.mcnichol@nist.gov

Web

Forensic Science Center of Excellence web page:
<http://www.nist.gov/coe/forensics>

Questions

Thank you for your interest in the
NIST Forensic Science Center of Excellence.

We will now take questions from the webinar attendees.

Back up Slides

Collaborations with NIST Staff

- The Forensic Science Center of Excellence Program Description specifically anticipates collaboration with NIST.
- Applicants are not required to collaborate with specific NIST employees
- Applicants may propose staff exchanges and other research collaboration activities without proposing any specific NIST collaborators.
- If the applicant wishes to propose collaboration with a specific NIST employee, the statement of work should include a statement of this intention, a description of the collaboration, and prominently identify the NIST employee(s) involved, if known.
- Any collaboration with an identified NIST employee that is approved by appropriate NIST management will not make an application more or less favorable in the competitive process.

Probabilistic Analysis

- Statistics is the study of uncertainty, and uncertainty should be measured by probability – Dennis Lindley (2000)
- Includes but is not limited to:
 - Probabilistic reasoning (e.g., Bayesian reasoning)
 - Bayes' Theorem – the probability of a hypothesis is modified by further data
 - Belief networks (e.g., Bayesian networks, Wigmore charts)
 - Statistical methods (e.g., Bayesian probability)